

WHAT IS CLAIMED IS:

1. An exhaust gas processing device comprising, in order from the upstream side of an exhaust gas flow direction, at least a nonleak-type gas-gas heater heat recovery unit, an
5 absorption tower, a mist eliminator, and a nonleak-type GGH reheater for circulating a heat medium with respect to the heat recovery unit arranged in a duct for exhaust gas discharged from a fire furnace, wherein

10 a heat suppression device for suppressing dissipated heat from the nonleak-type gas-gas heater reheater is arranged in an exhaust gas duct between the mist eliminator and nonleak-type gas-gas heater reheater.

2. The exhaust gas processing device as set forth in Claim 1, wherein a steam-gas heater is provided in the exhaust gas
15 duct between the mist eliminator and nonleak-type gas-gas heater reheater, and a heat suppression device for suppressing dissipated heat from the steam-gas heater is provided in the exhaust gas duct between the mist eliminator and steam-gas heater.

20 3. The exhaust gas processing device as set forth in Claim 1, wherein

as a heat suppression device for suppressing dissipated heat, provided is at least one construction or more of (a)-(c)

consisting of:

(a) a construction wherein the exhaust gas duct between the mist eliminator and nonleak-type gas-gas heater reheater is provided with a blow-off device;

5 (b) a construction wherein, a thermometer for measuring ambient air temperature of the inside of the exhaust gas duct is installed in the exhaust gas duct between the mist eliminator and nonleak-type gas-gas heater reheater, and a spray nozzle pipeline for washing an element of the mist eliminator and/or
10 an exhaust gas duct inner wall surface and the periphery thereof with a washing liquid, which is activated when the thermometer reads a set temperature or more, and an opening/closing valve of this pipeline are arranged at, of a front surface side and a rear surface side of the mist eliminator, at least the front
15 surface side; and

(c) a construction wherein, a heat-resistant resin material and/or a corrosion preventive lining material resistant to dissipated heat from the nonleak-type gas-gas heater reheater during a shutdown of the absorption tower is
20 provided on an element of the mist eliminator, an absorption tower outlet duct, an exhaust gas duct between the absorption tower and mist eliminator, and/or an exhaust gas duct between the mist eliminator and nonleak-type gas-gas heater reheater.

4. The exhaust gas processing device as set forth in Claim 2, wherein

as a heat suppression device for suppressing dissipated heat, provided is at least one construction or more of (a)-(c)

5 consisting of:

(a) a construction wherein a blow-off device is provided in the exhaust gas duct between the mist eliminator and nonleak-type gas-gas heater reheater;

10 (b) a construction wherein, a thermometer for measuring ambient air temperature of the inside of this exhaust gas duct is installed in the exhaust gas duct between the mist eliminator and steam-gas heater, and a spray nozzle pipeline for washing an element of the mist eliminator and/or an exhaust gas duct inner wall surface and the periphery thereof with a washing
15 liquid, which is activated when the thermometer reads a set temperature or more, and an opening/closing valve of this pipeline are arranged at, of a front surface side and a rear surface side of the mist eliminator, at least the front surface side; and

20 (c) a construction wherein, a heat-resistant resin material and/or a corrosion preventive lining material resistant to dissipated heat from the nonleak-type gas-gas heater reheater during a shutdown of the absorption tower is

provided on an element of the mist eliminator, an absorption tower outlet duct, an exhaust gas duct between the absorption tower and mist eliminator, and/or an exhaust gas duct between the mist eliminator and nonleak-type gas-gas heater reheater.

5 5. The exhaust gas processing device as set forth in Claim 1, wherein

the absorption tower is a two-chamber-type absorption tower provided with

10 (a) a circulation tank for retaining of an absorption liquid, and

(b) spray nozzles in respective regions, while an inlet duct for introducing exhaust gas discharged from a combustion device such as a boiler in almost a horizontal direction and an outlet duct for discharging exhaust gas in almost a horizontal direction are provided above this circulation tank, an exhaust gas channel is provided between the inlet duct and outlet duct, a partition plate stood in a vertical direction having an opening portion at a ceiling portion side to divide this exhaust gas channel into two chambers of an inlet duct side and an outlet duct side is provided, and an ascending current region where exhaust gas introduced from the inlet duct flows upward and a descending current region where exhaust gas flows downward toward the outlet duct after reversing at the opening portion

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of the ceiling side are formed by this partition plate, so that an ejecting absorption liquid slurry makes countercurrent contact with exhaust gas in the ascending current region and makes parallel-current contact in the descending current
5 region.

6. A method of using the exhaust gas processing device as set forth in Claim 1, wherein the heat suppression device is activated so as to suppress dissipated heat from the nonleak-type gas-gas heater reheater generated during a shutdown of the
10 adsorption tower.

7. A method of using the exhaust gas processing device as set forth in Claim 3, wherein

when a measured value of the thermometer for measuring ambient air temperature of the exhaust gas duct between the
15 mist eliminator and nonleak-type gas-gas heater reheater and/or between the mist eliminator and steam-gas heater becomes a set value or more, the opening/closing valve of the spray nozzle pipeline is activated, and the washing liquid is sprayed from the spray nozzle pipeline onto the element of the mist eliminator
20 and the periphery thereof.